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To whom it may concern

BY EMAIL

The economics of coal and steel, as relating to the proposal for 'Dewley Hill' A surface mine for the extraction of up to 1.2 million tonnes of coal and fireclay, Throckley, Newcastle ; Ref. 2019/0300/01/DET

I have been asked to offer my expert opinion on the above planning application for an opencast mine 'Dewley Hill', Throckley, Newcastle, and write here to state my objection.

My research focuses on the conditions and policies for achieving an environmentally sustainable economy. I hold a Ph.D. in economics from the University of London and I am currently Professor of Resources and Environmental Policy at University College London. I am Director of the UCL Institute for Sustainable Resources. Until May 2019 I was also Deputy Director of the UK Energy Research Centre. My areas of expertise include energy-environment-economy (E3) interactions and environmental policy, including: sustainable development assessment methodologies; resource productivity; sustainable energy use; E3 modelling and scenarios; the adjustment of national accounts to take account of environmental impacts; environmental economic instruments and ecological tax reform; sustainable consumption; and environment and trade. In 2015 I received an OBE for my services to environmental policy. I attach a brief biography with the titles of some my longer publications as an appendix.

I have been asked to review assertions by HJ Banks & Co Ltd ("Banks") in relation to the likely greenhouse gas (GHG) impacts of the proposed planning permission for the 'Dewley Hill' opencast coal mine. The Environmental Statement ('ES') submitted with the application and Appendix 24, a 'Greenhouse Gas Emissions Assessment' by Wardell Armstrong dated February 2019 (hereinafter 'GHG Assessment') make claims about the impact of the mine on emissions of GHGs.

The February 2019 GHG Assessment makes the following claim about the likely GHG emissions due to the Dewley Hill mine (at para 2.5.1):

> *"The calculations do not include the end use of the minerals [coal and fireclay] as it is assumed that they would be used (with similar or possibly greater emissions) in a do-nothing scenario (without the proposed developments)*

The underlying assumption, which is carried over into the Environmental Statement (and therefore infects its conclusions) is that there is not likely to be any increase in GHG emissions from additional coal production from a new mine in the UK. The ES then compares the carbon footprint of transportation of coal from Dewley Hill to those (higher) footprints of transportation elsewhere:

> *"Research indicates that the coal reserve at Dewley Hill can be mined and delivered to UK based customers with less GHG emissions than would be created by the transport alone of an equivalent amount of minerals to the UK from the main overseas sources (Russia, USA, Australia)" (ES part 24 Greenhouse Gas Emissions)*

As such, the ES adopts the following claim, which positions the mine as being of environmental benefit to the UK:

"One of the most effective and immediately available means at reducing carbon emissions from the industrial sector is to source the coal it requires from indigenous sources whereby avoiding the emissions associated with its transport to the UK" (ES 2.24)

Both claims - first, that the GHGs produced by coal from a new UK mine can be disregarded because they will substitute for imports, and second, that the new mine could support emissions reductions in coal transportation - implicitly rely on there being decreases in production overseas such that the total amount of coal produced globally remains the same.

The claim that global GHG emissions would be unaffected (or even improved) by the consumption of coal mined at Dewley Hill because it simply "substitutes" for emissions from coal that would be produced elsewhere, relies on the premise that an increase in coal production at Dewley Hill would lead to a corresponding (and equivalent) decrease in coal production elsewhere in the world, or that a mine of equivalent size would close.

Not to beat about the bush, this argument is economic nonsense. The whole of industrial history for the past two hundred years has shown that the increased supply of coal goes along with increased supply of whatever it is that coal is used to produce, and vice versa. It is the most elementary logic of supply and demand that is at the heart of all market operation. Imagine if the owners of the world's second coal mine had argued that they were not increasing the world's coal supply, as the owners of the world's first coal mine would simply reduce their production in response. The situation here is exactly analogous. World demand for coal, or for the products it is used to produce, is not fixed, and putting new supply on the market will reduce the price and increase that demand.

In particular, and in more detail, in this case there is no evidence to suggest that coal from the mine would result in reductions in coal extracted from mines overseas. Basic economic theory suggests that (absent special – and rare – circumstances where the demand for a product is considered to be entirely "inelastic" or the market it is supplying is completely saturated) an increase in the supply of a commodity such as coal will reduce the price of the commodity, leading to increased demand, and therefore increased emissions. This is a normal feature of economic markets and to refute the assumption that greater supply of a product will lead to increased demand would require a very strong argument (and evidence) that the coal market has one or more rare features (such as a cartel which controls global production) which override normal economic forces. I am aware of no such claim or evidence here.

Furthermore, the ES states (at para. 24.2) that:

...the minerals to be won at Dewley Hill are essential raw materials required by key industries in the construction sector of the UK economy (steel, cement and brick manufacturers). In this respect any emissions associated with the use of the minerals in the manufacturing processes are effectively "embedded" in that activity and are not influenced by the proposed development.

This claim is again contrary to basic economic theory. There is no reason why the demand for steel, cement and bricks would not be responsive to the price of the inputs to their production. And the ES explicitly recognises that Dewley Hill may produce coal that is currently below world market prices, when it states:

"The use of indigenously produced coal, which can compete in cost terms with global energy prices, will significantly increase the ability of the UK steel industry to remain competitive" (ES 2.52)

Cheaper industrial coal will, in the absence of policy incentives, result in more steel being produced through the traditional blast furnace method, and discourage investment in alternatives, even though, as I discuss below, such alternatives exist. Likewise, additional industrial coal will incentivise high-carbon cement production and discourage the development and deployment of lower-GHG alternatives. Thus additional industrial coal production is almost certain to result in additional carbon emissions. And, contrary to the extraordinary assertion above (ES 242), these emissions are not 'embedded'[1] in anything – they are released to the atmosphere where they contribute to climate change.

Without effective 'supply side' policies which limit fossil fuel extraction to a particular level (which currently do not exist in any exporting country cited by Banks), there is no reason to expect that there will be a corresponding reduction in supply upon the opening of the Dewley Hill mine. A recent report from the United Nations Environment Programme states that such policies are insufficient or, in the case of many countries, non-existent. Their 'Production Gap' report notes "governments are planning to produce about 50% more fossil fuels by 2030 than would be consistent with a 2°C pathway and 120% more than would be consistent with a 1.5°C pathway."[2]

The only grounds on which it would be safe to assume that new coal production in Newcastle would not lead to an overall increase in coal production would be if one or more coal mines elsewhere could be identified which would shut down production as the coal from the new mine came on stream. Such mines elsewhere have not been identified, and, in the absence of policies or legislation to restrict the extraction of coal elsewhere, it can safely be assumed that the result of approving Dewley Hill would be an overall increase in emissions, as per the argument above.

My own research, published in the journal Nature in 2015[3], states that over 80 per cent of current coal reserves must remain unused in order to stabilise global average temperatures to 2°C; note that the target adopted in the Paris Agreement has a more stringent 'well below' 2°C. It makes no climate sense to open new coal capacity in this situation.

A further argument against increasing coal production, with the likely resulting decreasing coal prices, is that this is likely to depress investment in alternatives to the carbon-intensive processes in energy-intensive industries, such as blast furnace steel production. Such alternatives, including reuse and remanufacture of steel; recycling of steel in electric arc furnaces (EAFs); the direct reduced iron process (DRI) which uses gas to make new steel; and producing steel with hydrogen; are all technically feasible. However, the relatively low price of blast-furnace steel production has inhibited the development of these alternatives. Again, in the absence of policy or legislation, increasing the supply of coal for industrial users will further discourage the deployment of these alternatives.

Although the processes are different, many of the same arguments apply to cement production, which is also a highly energy-intensive process. As with steel, increasing coal extraction is also likely

1 I am of course aware of the common, and inaccurate, use of this term to describe the energy, water and emissions associated with the production of a commodity, and have frequently pointed out its inaccuracy in discussions. In academic writing it tends to be used as a metaphor, with no implication that it actually means that the energy, emissions etc. are contained in the product in question. Banks' argument seems to misunderstand this terminology and claim that the emissions are contained in the product, which they manifestly are not.

2 The Production Gap: The discrepancy between countries' planned fossil fuel production and global production levels consistent with limiting warming to 1.5°C or 2°C, UNEP, November 2019

3 McGlade, C., Ekins, P., 2015. The geographical distribution of fossil fuels unused when limiting global warming to 2 °C. Nature 517, 187–190.

to depress investment in alternative methods of cement production and discourage a switch to lower-carbon fuels to meet the energy requirements of the cement industry.

As the UK progresses toward its statutory target of net-zero emissions by 2050, UK steel and cement production will be required to shift to the low-carbon alternatives described above. From the arguments above it is clear that the coal produced by Dewley Hill is likely both to increase emissions and to hamper the development and deployment of low-carbon technologies in this industry, thereby supporting the continuance of high-carbon steel and cement production and contributing to dangerous climate change.

Conclusion

I conclude that the claims made by Banks, that the combustion of coal from the Dewley Hill mine would not result in additional carbon emissions, are entirely unfounded. On the contrary, I would expect the mine to result in considerable additional carbon emissions.

Yours sincerely,

Professor Paul Ekins OBE
Director; Professor of Resources and Environmental Policy
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Appendix: Biography

Paul Ekins has a Ph.D. in economics from the University of London and is Professor of Resources and Environmental Policy at and Director of the UCL Institute for Sustainable Resources, University College London. Until May 2019 he was also Deputy Director of the UK Energy Research Centre, and the UKERC Co-Director leading on its Energy Resources theme, with research publications on low-carbon futures, fossil fuels and hydrogen. In addition, he is a member of UNEP's International Resource Panel and a Fellow of the Energy Institute. He is a member of Ofgem's high-level Sustainable Development Advisory Group, and was Chairman of the Government-funded National Industrial Symbiosis Programme (NISP), the UK's most successful programme to improve resource productivity. From 2002-2008 he was a Member of the Royal Commission on Environmental Pollution. From 1997-2005 he was a specialist adviser to the Environmental Audit Committee of the House of Commons, from 2003-2007 was a Member of the Government's Sustainable Energy Policy Advisory Board, and in 2007 was a Specialist Adviser to the Joint Parliamentary Committee on the Climate Change Bill. He has extensive experience consulting for business, government and international organisations, which has included over 50 projects and consultancies over the last ten years, and many advisory positions. He has also been a consultant to the Government's Sustainable Development Commission, and an adviser to the UK Government's Advisory Committee on Business and the Environment and Round Table on Sustainable Development, and has been a frequent contributor to His Royal Highness the Prince of Wales' annual course for senior executives on business and the environment at the University of Cambridge, and the Cambridge Programme for Sustainability Leadership. Since 2003 he has been a member, and is now Chairman, of the Judging Panel, UK Ashden Sustainable Energy Awards, and he is on the Judging Panel of the Rushlight and Rosenblatt New Energy Awards. He was a member in 2010-11 of two Ministerial Advisory Panels, on the Green Deal (DECC) and on the Natural Environment White Paper (DEFRA), and is on the Advisory Board of DECC's Energy Efficiency Deployment Office. In 2011 he was appointed Vice-Chairman of the DG Environment Commissioner's High-Level Economists Expert Group on Resource Efficiency and a member of the European Commission's high-level European Resource Efficiency Platform. Since 2015 he has been a member of the European Commission's High-Level Panel on the European Decarbonisation Pathways Initiative. He is currently Co-Chair of UN Environment's sixth edition of the Global Environmental Outlook (GEO-6)and of the Green Growth Knowledge Platform (GGKP)'s Research Committee on Natural Capital. In 1994 Paul Ekins received a Global 500 Award 'for outstanding environmental achievement' from the United Nations Environment Programme. In 2015 he was awarded an OBE in the UK's New Year's Honours List for services to environmental policy.

His publications in this area include numerous papers, book-chapters and articles in a wide range of journals, and has written or edited twelve books, including Global Warming and Energy Demand (Routledge, 1995); and Economic Growth and Environmental Sustainability: the Prospects for Green Growth (Routledge, London, 2000). His most recent books of which he is editor or co-editor are Understanding the Costs of Environmental Regulation in Europe (Edward Elgar, Cheltenham, 2009); Trade, Globalization, and Sustainability Impact Assessment: A Critical Look at Methods and Outcomes (Earthscan, London, 2009); Carbon-Energy Taxation: Lessons from Europe (Oxford University Press, Oxford, 2009); Hydrogen Energy: Economic and Social Challenges, (Earthscan, London, 2010); Environmental Tax Reform: a Policy for Green Growth (Oxford University Press, Oxford, 2011); Energy 2050: the Transition to a Secure, Low-Carbon Energy System for the UK (Earthscan, London, 2011); Global Energy: Issues, Potentials and Policy Implications (Oxford University Press, Oxford, 2015)